

عنوان مقاله:

Biodegradation of methylene blue from aqueous solution by bacteria isolated from contaminated soil

محل انتشار:

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خلاصه مقاله:

The use of biodegradation methods by microorganisms in the removal of industrial dyes are widely considered owing to their high efficiency and compatibility to the environment. Therefore, this study aims to evaluate the biodegradation of methylene blue (MB) from aqueous solution by bacteria isolated from contaminated soil. This study was performed in laboratory scale on bacteria isolated and purified from contaminated soil with methylene blue. Initially, the bacteria was isolated from contaminated soil. Thereafter, medium containing 50, 100, 200, 400, 800 and 1000 mg/l of methylene blue, 50 ml of salt medium with glucose and 2.5 ml of Brain-heart infusion (BHI) medium containing bacteria were prepared. The results of dye removal were analyzed using UV/Vis spectrophotometer at 665 nm. The results of purification and identification of the bacterial species which degrade methylene blue indicated that *Pseudomonas aeruginosa* was the dominant bacteria. In this study, the removal efficiency of bacteria was attained from 82.25 to 97.82% with an increase in initial MB concentration from 50 to 200 mg/l. Nevertheless, with increase in MB concentration from 200 to 1000 mg/l, removal efficiency was reduced to 43.08%. The optimum concentration of MB removal was 200 mg/l. It is evident from the results that the bacteria had used methylene blue as an auxiliary source of carbon apart from glucose. Finally, it can be concluded that *P. aeruginosa* is an appropriate candidate for the removal of methylene blue from the environment.

کلمات کلیدی:

Biodegradation; Methylene blue; Bacteria; Environmental Pollution

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